Rattan is a very important non-timber forest product, owing to its versatility. It is an export winner. Raising rattan, despite the lengthy time for plantation development, is necessary because natural stands have been significantly reduced.

Rattan plantation development is one of the priority technologies being promoted by Department of Environment and Natural Resources (DENR). The process combines environmental protection and rehabilitation, with the generation of employment opportunities for upland dwellers. Rattan plantations can ensure continuous supply of raw materials.

TECHNOLOGY AND PROCESS:

**Propagation by Seed**

**A. Seed collection, extraction and cleansing**

§ Collect only ripe fruits. Ripe fruits have light to deep yellow in color while mature seeds are brown to dark-brown.
§ Collect fruits by climbing or by using a scythe attached at the end of the pole
§ Macerate the fruits to separate the seeds.
§ Extract seed by rubbing or stumping the fruits while inside the sack or net bag. Scales, pulp and undesirable seeds will float while good seeds will sink.
§ Discard the water together with scales, pulp and other wastes.
§ Repeat the process until seeds are thoroughly clean.

**B. Seed Storage**

§ Drain all the water but do not dry the seeds. Dried rattan seeds will not germinate.
§ Place fruits/seeds not intended for immediate sowing in plastic bags or bottles and bury them 1m underground. Around 70% of the seeds will still germinate even after 7 months.
C. Pre-Germination

\[\text{c.1 Hilar Cover Removal}\]

§ Locate the hilum
§ Carefully remove the hilum cover with the use of a pointed knife or scalpel. Be careful not to destroy the embryo.

\[\text{c.2 Incubation}\]

§ Clean the extracted seeds with tap water.
§ Place the clean seeds in a warm but moist place.
§ Wash the seeds again.
§ Repeat the last three steps at least three more times, or when there are indications that the hilar cover has been dislodged. By this time, seed germination is already starting which usually occurs 7-10 days from the time of seed extraction.
§ Place the germinating seeds in prepared seed boxes with appropriate germination medium.

D. Germination, Sowing of seeds and Potting

§ Place the germinating seeds in a seed box.
§ Line the box with sterilized jute sack.
§ Fill the box with sterilized sawdust up to 5cm thick. The thick layer of sawdust will ensure long, straight roots for easy potting of germinants.
§ Sow the seeds up to 3 layers to save space.
§ Cover the sown seeds with sterilized jute sack and place in a shady but warm place.
§ Water the sown seeds daily.
§ Spray fungicide in case of fungal attack, though this can be avoided with thorough cleaning and fungicidal dressing of seeds before sowing.
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§ Spray fungicide in case of fungal attack, though this can be avoided with thorough cleaning and fungicidal dressing of seeds before sowing.
§ Pot the germinants having at least one-inch long shoots in 4”x6” plastic bags filled with top soil mixed with about 10% organic fertilizer.

E. Care, and maintenance in the nursery

§ Place the potted germinants under shade and water daily. Fence the nursery to protect plants from intruders and stray animals.
§ Apply foliar fertilizers as recommended two months after potting to ensure healthy seedlings and to boost its growth
§ Harden the seedlings before outplanting in open planting sites by gradual exposure of seedlings to sunlight. Seedlings for partly shaded planting sites do not require hardening.

Propagation by Wildlings

A. Wildling collection

§ Collect wildlings with at most one pair of leaves or not taller than 20cm. Bigger wildlings have higher mortality rate.
§ Uproot wildlings carefully to avoid extensive root.
§ Trim leaves but not the damaged roots.
B. Storage and transport

§ Wrap the wildlings in wet, old newspaper or moss during transit if the nursery is far from the source
§ Place collected wildlings in a container that can hold moisture. Wildlings should be kept moist
§ Pot the wildlings upon reaching the nursery. Soil bagging should be done before wildlings collection.

C. Potting and care in the nursery

§ Follow the same potting and tending procedure for rattan plants propagated by seeds.

Plantation Establishment

A. Site Selection

a.1 Suitable sites for rattan plantation are:

§ Second growth forest – residual forest and logged-over areas
§ Brushland or shrub vegetation
§ Forest tree plantations – forest tree plantations and reforestation projects that are scheduled for harvest after 12-15 years like mahogany and gubas.
§ Protected areas where growing rattan is intended for seed collection.

B. Site preparation

§ Clear strip about 1 meter wide
§ Plant at a distance of 4m x 4m. Use available materials as stakes.
§ Dig the holds in every stake. These should be wide enough to fit the planting stock with about one foot or 30 cm depth. Separated the top soil from the sub soil.

C. Transporting and planting seedlings

§ Place the seedlings in a box and transport to the planting area.
§ Place the seedlings temporarily in the middle of the planting areas for easy access.
§ Remove the plastic bag of the seedling without breaking the ball of soil around the soil and then put seedling in the hole with its root collar at level with the ground surface.
§ Pulverize the top and sub soil separately. Put the top soil first to provide the basic nutrients needed for its growth. Follow it with the sub soil and press gently.

D. Maintenance and protection

§ Conduct ring weeding within 50 cm radius for every 6 months for the first three years to allow enough sunlight and facilitate faster growth of seedlings.
§ Apply organic and/or inorganic fertilizer. Apply complete fertilizer (14-14-14), at an initial rate of 6 g/seedling every 6 months for the first two years. For the second growth, fertilization is not necessary.
§ Establish firelines of 10-meters wide along boundaries of the areas/plantations.
§ Practice mulching to conserve soil moisture and control weed growth.
§ Replace dead seedlings 2-3 months after planting to ensure even-aged growth of rattan.

Harvesting and Transporting

A. Start harvesting rattan on the 12th year after its establishment. Succeeding harvests can be done every one or two years. Mature canes reach 6-10m depending on the species and the environmental condition in the plantation site.
B. Select mature canes only. A cane is mature when it is green to yellow in color or its leaf sheaths are already detached.
C. Cut mature canes using a sharp bolo at about 15-30 cm above the ground.
D. Remove the thorny leaf sheaths and cut the soft, whitish and immature portion of the cane using a bolo.
E. Cut the cane into the standard buying length of rattan poles 2.5-2.8 lineal meter length starting from the base. This will facilitate transportation and avoid wastage.
F. Bundle and transport the poles to designated stockyard immediately after harvest.
G. Proper treatment and recommended drying methods should be followed.

MARKETING NOTES

Rattan has a sure and steady market. Rattan seedlings have ready markets which include NGO’s, cooperatives and other contractors of government projects on rattan plantation establishment. Air-dried poles can be delivered to registered buyers.

ECOLOGICAL BENEFITS

Putting up a rattan plantation enhances the biodiversity of a given area. It is also maximizes land use through interplanting with other trees. Establishment of rattan plantation enhances rehabilitation of degraded forest lands into productive and ecologically-stable environment.

SOCIOECONOMIC BENEFITS

Rattan seedling production can generate net income of PhP46,650 at the production rate of 50,000 palasan seedlings. Present value of net income (NPV) over a 14-year period is PhP118,318 at 15% interest rate. However, using 20% rate of interest, NPV is equivalent to only PhP63,201. Payback is 12 years and internal rate of return is 40% meaning the livelihood project can afford to pay at 40% rate of interest to break-even.

SUPPORT SERVICES

Technical assistance and hands-on training on rattan seedling production and plantation establishment can be availed at ERDB and all DENR Regional Offices. Financial assistance may be also availed from local government units.

RELEVANT LAWS AND REGULATIONS

Apply to permit to collect seeds from the natural forest (old growth and second growth) and for rattan gathering and transportation from the Community Environment and Natural Resources Office (CENRO). Rattan permittees are required to replant their rattan production blocks. For rattan production, register with the nearest CENRO-DENR Office as per R.A. 7586, NIPAS.

MANAGEMENT CONSIDERATION

Production is governed by the seasonability of the seed supply and adverse climatic conditions are forces to reckon with. Economics of rattan seedling production is influenced by proximity to potential reforestation areas. Among the major gaps affecting the sustainability of community rattan nursery technologies are along policy concerns. Rattan plantation managers should consider the distance of the site to the centers of services.

Source: www.neda.gov.ph